<u>AMENDMENTS TO THE SPECIFICATION</u>

Please amend the specification as indicated below.

Please amend the paragraph beginning on page 6, line 14, as follows:

The processor may be configured to adjust the reference voltage periodically. The processor may be configured to increase the reference voltage when an increase in power drawn from the energy converter results in a change in supply voltage within a second range. The second range may be dependent upon the amount of power being drawn from the energy converter. The second range may be relatively small when relatively large amounts of power are being ~~drawn from the energy converter~~ <u>supplied to the load</u> and the second range may be relatively large when relatively small amounts of power are being ~~drawn from the energy converter~~ <u>supplied to the load</u>. The processor may be further configured to decrease the reference voltage by an amount dependent upon the amount of power supplied to the load. In particular, the processor may be configured to decrease the reference voltage by a relatively large amount when the power supplied to the load is relatively low and to decrease the reference voltage by a relatively small amount when the power supplied to the load is relatively high. The apparatus may include an output operable to provide a power command signal to the energy transfer device, and the processor may be configured to produce the power command signal to represent the change in power to be drawn from the energy ~~conversion device~~ <u>converter</u>.

Please amend the paragraph beginning on page 12, line 4, as follows:

The power inverter 20 has a processor 26 operable to control the DC to DC converter 22 and DC to AC ~~converter~~ <u>inverter</u> 24 to change the amount of working power drawn from the array 18 to correspondingly change the amount of working power supplied to the AC load 16. To do this the inverter 20 includes a DC current sensor 28 for sensing the current supplied by the

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array 18, a DC voltage sensor 30 for sensing the supply voltage at the array 18, and an AC power sensor 32 for sensing AC power supplied to the AC load 16. These sensors 28, 30 and 32 are in communication with the processor 26 and the controller is able to read and interpret signals therefrom as array current (1k), array voltage (Vk) and AC power (ACP) respectively. The sensors 28, 30, and 32 may respectively provide a current measurement resolution of about 62.5mA, a voltage resolution of about 0.125V, and an AC power resolution of about 1W, for example.

Please amend the paragraph beginning on page 12, line 18, as follows:

Referring to Figure 4, the processor 26 may include a microchip PIC 16F876A, for example, having a CPU 40, a program memory 42, random access memory 44 and an I/O interface 46. Signal lines 48, [[50]]49 and [[52]]51 operable to receive a signal from the DC current sensor 28, a signal from the DC voltage sensor 30 and a signal from the AC power sensor 32, respectively, are connected to the I/O interface. The I/O interface 46 also provides an AC power command signal to the DC to AC inverter 24, specifying a desired AC power to be supplied to the AC power grid 16. In general, in response to the DC current signal, the DC voltage signal and the AC power signal, an appropriate AC load power command signal is produced by the processor 26 to control the DC to AC inverter 24 such that maximum power is extracted from the array 18.

Please amend the paragraph beginning on page 15, line 24, as follows:

Referring back to Figure 6, effectively the calculate regulation window value routine sets the dv_mp value to establish the boundary 74 shown in Figure 7 between the regulate increase zone 70 and the no-action zone 72 thus defining the width of the ~~no-regulate~~

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no-action zone. The establishment of the variable-sized no-action zone 72 eliminates dithering and allows the processor circuit to change its sensitivity to changes in voltage, depending upon the trend in voltage increases and decreases.

Please amend the paragraph beginning on page 16, line 29, as follows:

Referring back to Figure 8, when the processor 26 calls the more power routine as shown at block 90, the more power routine shown at 100 in Figure 9A is executed. Generally, the more power routine 100 begins with a first block 102 that causes the processor 26 to determine whether or not the array voltage V_k is greater than the sum of the MPPT_ref voltage and a predefined value, for example, 2.0 volts. When the array voltage V_k is more than 2.0 volts above the MPPT_ref voltage, block 104 directs the processor 26 to set a power step variable according to Table [[2]] 4 shown in Figure 9B. Use of this table involves using the presently measured AC load power value as an index to the table to determine which of a plurality of power ranges, the present AC load power value falls into. If the AC load power value is between zero and 40 volts, for example, the power step value is set to 4 watts. If the AC load power is between 800 watts and the maximum power available, the power step value is set to 24 watts, for example. In general, progressively larger AC load power ranges are associated with progressively larger power step values.

Please amend the paragraph beginning on page 18, line 10, as follows:

The less power routine is shown in Figure 10A, with further reference to Figure 10B. A first part of the less power routine is shown in Figure 10A at 110 and begins with a first block 112 that causes the processor 26 to determine whether the change in power since the last pass through the main routine shown in Figure 5 is negative. If so, block 114 directs the

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processor 26 to issue a power command to the DC to AC ~~converter~~ inverter 24 to cause a decrease in the power demanded from the array by an amount equal to the difference in power demanded since the last pass through the main routine. On the other hand, if the change in power is not negative, i.e., zero or positive, block 116 directs the processor 26 to issue a power command that decreases the power demanded from the array by a fixed amount such as 4 watts, for example. In effect, block 114 decreases the power demanded from the array by an amount depending on the change of power, and block 116 decreases the power demanded from the array by a fixed amount.

Please amend the paragraph beginning on page 18, line 25, as follows:

After either block 114 or 116 has been executed, a second part of the less power routine as shown at 118 is executed. This second part 118 of the less power routine includes a first block 120 that causes the processor 26 to determine whether or not a backoff timer has timed out. If not, the less power routine is ended. If so, block 122 directs the processor 26 to determine whether or not the action state variable has been set to "regulate decrease". If not, then the less power routine is ended. If so, however, block 124 directs the processor 26 to use Table B of Figure 10B to determine a DC offset value shown in column 126 associated with an AC load power range shown in column 128 in which the current AC load power falls. Then, block 130 directs the processor 26 to determine whether or not the present array voltage V_k is less than the current MPPT_ref value less the DC offset value found in block 124 and if not, the less power routine is ended. If the array voltage V_k is less than the MPPT_ref less the DC offset, i.e., it is within a second range, block 132 increases the MPPT_ref value by the amount indicated in Column 134 of Table B in Figure 10B associated with the power range in which the current AC load power falls. Thus, the second range is dependent upon the amount of power

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being supplied to the load. The second range is relatively small when a relatively large amount of power is supplied to the load and is relatively large when a relatively small amount of power is supplied to the load. Any increases in MPPT_ref may be limited to ensure ~~MPPT-ref~~ MPPT_ref is no greater than the open circuit voltage of the array less some guard value such as 3 volts, for example. (The open circuit voltage of the array may be measured periodically to allow for changes in the open circuit voltage to be monitored.)

Please amend the paragraph beginning on page 21, line 9, as follows:

If at block 158 the array voltage V_k is not less than the MPPT_ref value, block 164 directs the processor circuit to set the action state variable to "sweep increase" and block 166 directs the processor 26 to call the more power routine shown in Figure [[9B]]9A. Referring back to Figure 11A, after the more power routine has been called, the MPPT routine is ended.

Please amend the paragraph beginning on page 22, line 5, as follows:

Referring to Figure 9A, the more power routine includes a block 179 shown in broken outline which determines whether or not the action state variable is equal to "sweep increase" as set by block 176 in Figure 11A. If so, the processor 26 is directed to block [[102]]108 of Figure 9A wherein the power step value is set to 4 watts such that block 106 causes a power command to be issued to request 4 more watts from the system.

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